

## Contributors to This Issue

ARTHUR B. CRAWFORD, B.S.E.E. 1928, Ohio State University; Bell Telephone Laboratories 1928-. Mr. Crawford has been engaged in radio research since he joined the Laboratories. He has worked on ultra short wave apparatus, measuring techniques and propagation; microwave apparatus, measuring techniques and radar, and microwave propagation studies and microwave antenna research. He is author or co-author of articles which appeared in *The Bell System Technical Journal*, *Proceedings of the I.R.E.*, *Nature*, and the *Bulletin of the American Meteorological Society*. He is a Fellow of the I.R.E. and a member of Sigma Xi, Tau Beta Pi, Eta Kappa Nu, and Pi Mu Epsilon.

C. CHAPIN CUTLER, B.S. 1937, Worcester Polytechnic Institute. Bell Telephone Laboratories 1937-. Mr. Cutler's early work was in research related to the problems of the short wave multiplex radio transmitter. During World War II he was engaged in research on the proximity fuse and microwave antennas for radar use. Since the war he has been concerned with research on the microwave amplifier and the traveling wave tube. Mr. Cutler is a member of the I.R.E. and Sigma Xi.

HARRY H. FELDER, B.S. in Electrical and Mechanical Engineering, Clemson A. and M., 1918. After some months in the U. S. Signal Corps he joined the Engineering Department of the American Telephone and Telegraph Company in 1919. He joined the Laboratories in 1934. He has been engaged in general transmission problems in connection with telephone repeater development and toll circuit layout and switching. During World War II, Mr. Felder assisted in the development of a method of laying telephone wires from airplanes. Since that time he has continued to work on the transmission aspects of intertoll trunk design, switching, maintenance and loading. He was also associated with adapting of cable carrier circuits for radio broadcast networks. Mr. Felder is a member of Tau Beta Pi.

J. H. FORSTER, B.A. 1944, M.A. 1946, University of British Columbia; Ph.D. 1953, Purdue University; Bell Laboratories 1953-. Since joining the Laboratories, Dr. Forster has been engaged in research on semi-

conductor devices including point-contact transistor development, transistor reliability studies and the development of low-noise alloy transistors. He also served as instructor of semiconductor electronics in the Laboratories Communications Development Training program. At present he is engaged in surface studies and semiconductor device reliability. Member of Sigma Pi Sigma and Sigma Xi.

DAVID C. HOGG, B.Sc., University of Western Ontario, 1949; M.Sc. and Ph.D., McGill University, 1950 and 1953. Dr. Hogg joined Bell Telephone Laboratories in July 1953 and has worked at the Holmdel Laboratory. He has been engaged in studies of artificial dielectrics for microwaves, antenna problems, and over-the-horizon and millimeter wave propagation as a member of the Radio Research Department. During World War II Dr. Hogg was in the Canadian Army and spent five years in Europe. From 1950 to 1951 he was engaged in research for the Defense Research Board of Canada. He is a member of Sigma Xi.

JOHN L. KELLY, JR., B.A. in 1950, M.A. in 1952, and Ph.D. in 1953, all in Physics at the University of Texas. Dr. Kelly joined Bell Telephone Laboratories in 1953 as a member of the Television Research Department at the Murray Hill Laboratory. He has been engaged in experimental work on the nature of television pictures as well as theoretical investigations pertaining to applications of the Information Theory to television. In 1944 he was commissioned a Navy pilot and served three years.

ARCHIE P. KING, B.S. California Institute of Technology, 1927. After three years with the Seismological Laboratory of the Carnegie Institution of Washington, Mr. King joined Bell Telephone Laboratories in 1930. Since then he has been engaged in ultra-high-frequency radio research at the Holmdel Laboratory, particularly with waveguides. For the last ten years Mr. King has concentrated his efforts on waveguide transmission and waveguide transducers and components for low-loss circular electric wave transmission. He holds at least a score of patents in the waveguide field. Mr. King was cited by the Navy for his World War II radar contributions. He is a Senior Member of the I.R.E. and is a Member of the American Physical Society.

J. G. LINVILL, A.B., William Jewell College, 1941; S.B. in 1943, S.M. in 1945 and Sc.D. in 1949, all in electrical engineering at Massachusetts Institute of Technology. Dr. Linvill served at M. I. T. as assistant pro-

fessor in electrical engineering from 1949 to 1951 and was a consultant to Sylvania Electrical Products. He joined Bell Telephone Laboratories in 1951 and worked on active network problems involving applications of transistors as the active element. In March, 1955, he became Associate Professor of Electrical Engineering at Stanford University. He is a member of the American Institute of Electrical Engineers, Institute of Radio Engineers, Sigma Xi, and Eta Kappa Nu.

EDWARD N. LITTLE, A.B., Yale, 1916; S.B., Massachusetts Institute of Technology, 1919; Signal Corps and Air Service Radio Officer training, World War I. Joined Long Lines Department of A. T. & T. in 1919 to work on transmission studies. Transferred to Transmission Section of O. & E. Department in 1922 in work dealing with telephone repeaters. Nine years later joined the group working on transmission maintenance, and since then has worked principally on various phases of voice-frequency toll transmission maintenance. For the last eight years he has been working on the problems of intertoll trunk transmission maintenance posed by the advent of nationwide intertoll dialing with full automatic alternate routing. One angle of this work has been the development and application of statistical analyses as tools for helping to attain the required reduction in net loss variations.

ENRIQUE A. J. MARCATILI, University of Cordoba, Argentina. Mr. Marcatili was awarded the Argentine title of Aeronautical Engineer in 1947 and the title of Electrical Engineer in 1948. He received a Gold Medal from the University of Cordoba for the highest scholastic record. He joined Bell Telephone Laboratories in 1954 after studies of Cherenkov radiation in Cordoba, and has been engaged in waveguide research at Holmdel. Specifically, Mr. Marcatili has been concerned with the theory and design of filters in the millimeter region to separate channels in waveguides. He has published technical articles in Argentina and belongs to the A. F. A. (Physical Association of Argentina).

LEWIS E. MILLER, B.S. in Engineering Physics, Lafayette College, 1949; General Aniline and Film Corp., 1949-1952; Bell Telephone Laboratories, 1952-. Since joining the Laboratories Mr. Miller has specialized in the development of transistors. His early work was on the development for manufacture of the point-contact transistor. From 1954 to May 1956 he was concerned with surface problems and the development of germanium alloy transistors. At present he is concentrating on diffused silicon transistors. Mr. Miller is a member of the American Physical Society.

A. J. PASCARELLA, E.E., Columbia University, 1916. After his graduation he entered the student course of the General Electric Company at Schenectady. Shortly after our entrance into World War I, Mr. Pascarella joined the U. S. Navy and was put in charge of the electrical laboratory of the Gas Engine School at Columbia. In 1921 he joined the Western Electric Company and in 1925 the Technical Staff of the Laboratories. Here with the Systems Department he was concerned with the development of toll testboards, toll signaling, telegraph, carrier and miscellaneous testing equipment. Later his work consisted of formulating maintenance requirements for the over-all testing of toll lines and the detecting and location of faults on toll cables. During World War II he was concerned with developing high level auditory systems for use in psychological warfare. He also acted as editor of repair manuals used by the Armed Services. At the present time he is working on military projects. Licensed Professional Engineer, New York State.

L. G. SCHIMPF, B.E.E., Ohio State University, 1937; Bell Telephone Laboratories, 1937-. From 1937 to 1940 Mr. Schimpf was engaged in research on the application of electronic devices to switching functions, with particular emphasis on cold cathode tubes. With the outbreak of World War II, he turned his attention to research and development work on military projects. For six years after the war he specialized in transmission research studies of local subscriber station circuits and acoustics. Since 1952 he has been engaged in transistor circuit research. In this field he has concentrated particularly on the high frequency operation of transistors in transmission circuits. Senior Member of I.R.E., member of Acoustical Society of America, Eta Kappa Nu, and Tau Beta Pi.

H. F. SHOFFSTALL, B.E.E., Ohio State University, 1916; American Telephone and Telegraph Company, 1916-35; Bell Telephone Laboratories, 1935-. Mr. Shoffstall worked on the development of telephone repeaters and on toll equipment for central offices until he came to the Laboratories in 1935. Since then he has been associated with the switching development group engaged in the design of toll-switching circuits. Member of the American Institute of Electrical Engineers.

HAROLD SEIDEL, B.E.E., College of the City of New York, 1943; M.E.E., D.E.E., Polytechnic Institute of Brooklyn, 1947 and 1954. Dr. Seidel joined Bell Telephone Laboratories in 1953 after employment with the Microwave Research Institute of the Polytechnic Institute of Brooklyn, the Arma Corporation and the Federal Telecommunications Laboratory.

tories. His work at the Laboratories has been concerned with general electromagnetic problems, especially regarding waveguide applications, and with analysis of microwave ferrite devices. Dr. Seidel is a member of Sigma Xi and the I.R.E.

S. WEISBAUM, B.A., M.S. and Ph.D., New York University, 1947, 1948 and 1953; instructor in physics, New York University, 1950-53; Bell Telephone Laboratories, 1953-. Since joining the Laboratories, Dr. Weisbaum has specialized in the development of microwave ferrite devices, such as isolators and circulators. He is a member of the American Physical Society and Sigma Xi.

